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Rich *and* Powerful?

Subjective Power and Welfare in Russia

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Abstract

Does "empowerment" come hand-in-hand with higher economic welfare? In theory, higher income is likely to raise both power and welfare, but heterogeneity in other characteristics and household formation can either strengthen or weaken the relationship. Survey data on Russian adults indicate that higher individual and household incomes raise both self-rated power and welfare. The individual income effect is primarily direct, rather than through higher household income. There are diminishing returns to income, though income inequality emerges as only a minor factor reducing either aggregate power or welfare. At given income, the identified covariates have strikingly similar effects on power and welfare. There are some notable differences between men and women in perceived power.

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Rich and Powerful? Subjective Power and Welfare in Russia

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1. Introduction

"Empowerment" might be viewed as solely a matter of the freedoms permitted to all by the laws and institutions that prevail in a given society. However, it is evident that different people have different abilities to directly influence the actions of others and that this is so within a given society, with one set of laws and institutions. In short, there is inequality of personal power, just as there is inequality of economic welfare.

Some policy-oriented discussions have taken this observation further to argue that redressing power inequality — by taking actions that selectively empower those with little power — should be seen as a distinct policy objective, side-by-side with the more traditional aims of reducing poverty and inequality in terms of economic welfare. For example, the World Bank's (2000) report *Attacking Poverty* puts the need for "empowerment" on the same level as promoting (economic) "opportunity" and "security."

Assessing the empowerment role for public policy calls for a deeper understanding of how power is assigned to people. Does lack of power in a given society come hand-in-hand with income poverty, or is it determined differently? Is there a trade-off, such that some of the things that enhance economic welfare are not also good for individual empowerment? Does focusing on empowerment diminish the income focus of mainstream development efforts? What extra implications does empowerment hold for income-redistribution policy? Does the fact that discussions of empowerment are often linked to gender inequalities reflect differences in the perceptions of men versus women about power?

This paper explores one possible source of clues on the answers to these questions, namely by looking at the expressed perceptions of people about their own power — to see how

those perceptions compare with both subjective and objective indicators of their welfare. We examine how much agreement there is between subjective "power" and "welfare" in data for Russia, and examine whether there is any sign that different covariates matter. Although there has been debate on how much aggregate economic growth raises aggregate subjective welfare (the total number of people who feel satisfied with their lives, for example), a positive effect is still to be expected at the individual level and there is ample supportive evidence for that effect.[2] But we know less about income effects on perceived power, and the role of non-income factors, such as gender, age, ethnicity and location.

Relying on expressed perceptions brings some concerns. Possibly a person's feeling of power is a fiction in reality, and similarly for perceived welfare. However, while there is undoubtedly noise in subjective data, it can still identify real effects that are illusive otherwise.[3] And without the perception of power to influence things that matter, how can it be said that there is real "empowerment"? The perception of power is surely necessary, though not sufficient.

There are antecedents to our use of subjective data, spread over a number of disciplines. Economists have traditionally resisted the use of subjective questions, though there are exceptions. The links between subjective welfare and income have attracted the attention of economists, including Easterlin (1995) and Oswald (1997). Subjective questions have also been used in calibrating utility functions of income, following Van Praag (1968). In psychology, there is now a large literature on subjective welfare and its covariates (for a survey see Deiner et al., 1999). Various types of subjective data on power have been used in the social sciences. In political science, subjective data have been used to study "power consciousness" (Aberbach,

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[2] For further discussion see Easterlin (1995), Oswald (1997) and Deiner et al. (1999).

1977) and in research on political efficacy (for example, Stewart et al, 1992) and political freedom (Gibson, 1993). In sociology and social psychology, subjective questions on powerlessness have been used to study alienation (Roberts, 1987) and paranoia (Mirowsky and Ross, 1983). There has also been research on related aspects of self-perception such as work in sociology on subjective class-identification (Davis and Robinson, 1988).

However, the relationship between power and welfare has received little attention in the literature. In one of the few exceptions, Ross and Mirowsky (1992) find evidence for the U.S. that wage employment, higher earnings and higher education are all associated positively with a greater (subjectively assessed) "sense of control" over one's life — suggestive of greater empowerment. Using subjective welfare data for Switzerland, Frey and Stutzer (2000) find that the ability of people to influence outcomes of the local political process raises their subjective welfare. We know of no attempts to examine the joint socio-economic determinants of power and welfare, including the role played by incomes, both in levels and their distribution.

Contemporary Russia is of interest as a setting for this enquiry for two reasons. Firstly, there is clearly inequality in both power and economic welfare. Despite the fact that Russians have enjoyed new-found political freedoms since the late 1980s, it is unlikely that empowerment has clearly not yet been widely diffused; this variance in perceived power offers the hope of better understanding its etiology. The high degree of income inequality that emerged in Russia in the 1990s also suggests that it is an interesting setting for examining income effects.

Secondly, there are survey data for Russia that offer an opportunity for examining these issues. The survey we will use asked all adult respondents to place themselves on Cantil (1965)

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[3] On the potential of subjective data for addressing the longstanding problem of identifying welfare from observed behavior see van Praag (1968), Kapteyn (1994) and Pradhan and Ravallion (2000).

ladders for both power and welfare. For assessing perceived power, the survey asked:

> *"Please imagine a nine-step ladder, where on the bottom, the first step, stand people who are completely without rights, and on the highest step, the ninth, stand those who have a lot of power. On which step are you?"*

We refer to this the Power Ladder Question (PLQ). The corresponding welfare question is:

> *"Please imagine a nine-step ladder where on the bottom, the first step, stand the poorest people, and on the highest step, the ninth, stand the rich. On which step are you today?"*

We call this the Welfare Ladder Question (WLQ).[4] Both questions leave it up to the individual to decide what it means to be "without rights", to have "a lot of power," or to be "poor" versus "rich." In past analysis of the WLQ (in earlier rounds of the same survey), Ravallion and Lokshin (2002) found that the answers could not be interpreted as solely reflecting real household income (household income deflated for differences in the cost-of-living and in household size and composition). There was evidence of significant individual income (and other) effects at given household characteristics, and strong effects of education, employment, health status, area of residence and other characteristics, independently of income. The WLQ is clearly capturing a broader concept of welfare.

In addition to asking individual perceptions of power and welfare, the surveys collected a standard set of objective socio-economic characteristics that are potential covariates of both power and welfare. This allows us to deal with an obvious limitation of past work on subjective power, namely that these data are only collected within a relatively light survey instrument.[5] A further advantage of our data is that they are longitudinal, so we can look at how perceptions of

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[4] See Ravallion and Lokshin (2002) for further discussion of this question and alternatives in the literature as means of identifying individual welfare functions.

[5] For example, Gibson (1999) compares perceptions of political freedom in the Soviet Union in 1990 across identified covariates and argues that "perceptions of (political) repression have evenly

power and welfare change over time. By choosing the time period 1998-2000 we also expect to observe significant welfare gains, since the 1998 survey was done soon after the 1998 financial crisis, which impacted on household welfare (Lokshin and Ravallion, 2000).

Armed with these data, we address the following questions:

- How much do perceptions of current power and welfare agree? How much of this is accountable to observable covariates?
- How much does income inequality attenuate aggregate power and welfare? How important is inequality within the household versus between households?
- How do the answers to these questions differ between men and women?

The following section offers some theoretical arguments with bearing on how closely one might expect power and welfare to be associated across individuals. We then discuss our approach to modeling the data and present our results. The final section concludes.

2. Personal power and welfare in theory

We assume that a person's perceived power depends in part on his effort to participate in certain institutions. These may be explicitly political institutions or neighborhood or work-related institutions. The effort to participate is costly to the individual, though there are also direct welfare benefits. The characteristics of a person (education, age, location and so on) can influence both the costs and benefits of acquiring power. We initially ignore households and treat each individual as an "island," though we relax this later.

The power acquired by a person making effort e with characteristics x is $p = \pi(e, x)$,

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diffused throughout society" (p.959). Yet Gibson's data set contain rather few covariates, and it is unclear to what extent his conclusion derives from this limitation of his data.

where the function π is strictly increasing and at least weakly concave in effort. The cost is $c(e,x)$, which is assumed to be strictly increasing and at least weakly convex in effort. (These curvature assumptions can be relaxed somewhat without changing the main results.)

Power is valued positively. This may be because it directly raises personal consumption opportunities, or it may be valued independently of consumption. Let y denote exogenous income, meaning that component of income that is unaffected by power. We use the term "net income" to refer to exogenous income net of the cost of acquiring power. Utility is a strictly increasing function of both net income and power, namely $u[y-c(e,x),\ \pi(e,x)]$. A special case is when $\pi(e,x)$ is the income gain due to power, which is not valued independently of consumption, so utility is simply an increasing concave function of $y-c(e,x)+\pi(e,x)$.

The function u is assumed to be strictly quasi-concave in its two arguments. We also assume that there are diminishing returns to consumption, non-increasing returns to power and that higher power (income) does not decrease the marginal utility of income (power) i.e., $u_{yp} \geq 0$ (though these assumptions too can be weakened somewhat without changing the main results).

The chosen level of effort, $e(y,x)$, maximizes $u[y-c(e,x),\ \pi(e,x)]$, which requires that $u_y c_e = u_p \pi_e$ (using subscripts to denote partial derivatives). It is readily verified that:

$$e_y = (u_{yy}c_e - u_{yp}\pi_e)J^{-1} > 0 \tag{1}$$

$$e_x = [(u_{yp}\pi_x - u_{yy}c_x)c_e + u_y c_{ex} + (u_{yp}c_x - u_{pp}\pi_x)\pi_e - u_p \pi_{ex}]J^{-1} \tag{2}$$

where

$$J \equiv u_{yy}c_e^2 - 2u_{yp}\pi_e c_e - u_y c_{ee} + u_p \pi_{ee} + u_{pp}\pi_e^2 < 0$$

The derived level of power at optimal effort is:

$$p(y,x) = \pi[e(y,x),x] \tag{3}$$

where $p_y = \pi_e e_y > 0$ and $p_x = \pi_e e_x + \pi_x$. The derived level of utility at optimal effort is:

$$v(y,x) = u[y - c(e(y,x),x),\ p(y,x)] \tag{4}$$

where $v_y = u_y > 0$ and $v_x = -u_y c_x + u_p \pi_x$.

While it is reasonable to assume that $p(y,x)$ is the continuous variable that people have in mind when they answer the PLQ, there can be no presumption that answers to the WLQ are based solely on utility. The maximand for choice need not coincide with perceptions of poverty. Nor can we assume that answers to the WLQ are based on y or $y - c(e,x)$; people may think that this is too narrow a basis for distinguishing "poor" from "rich".[6] Instead, we assume that the WLQ is based on a more general definition of "welfare" represented by:

$$w = w[u(y - c(e,x),\ \pi(e,x)),x] \tag{5}$$

The function w is strictly increasing in utility, but can also vary with x independently of utility. Notice that while maximizing w yields exactly the same effort function (such that $u_y c_e = u_p \pi_e$), it could clearly behave in very different ways to $v(y,x)$ or y, given heterogeneity in x.[7] So power might be correlated highly with income or utility but not welfare, as given by (5).

Since both power and utility are welfare increasing in income in the above model, we can expect a strong association between power and welfare amongst otherwise identical individuals, through the joint effect of income differences. Decreasing returns to effort in augmenting power will tend to yield a concave relationship between power and individual income. Against this

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[6] This echoes Sen's (1987) well-known critique of both "utility" and "income" interpretations of the "standard of living."

[7] This is formally similar to the well-known problem of identifying utility from demand behavior, as discussed in (*inter alia*) Pollak (1991) and Browning (1993).

effect, the income effect on effort can be either increasing or decreasing in income. For power to be concave in income we require that the income effect on effort is not too convex; specifically that $e_{yy} < -\pi_{ee} e_y^2 / \pi_e (> 0)$. Then higher income inequality (in the usual sense of mean preserving spreads) will tend to reduce aggregate power as well as welfare (given our standard assumptions of diminishing marginal utility of income). One can conjecture that there may also be effects of inequality on the distribution of individual power or welfare, through the vector x. For example, highly unequal societies may come with greater repression of the political freedoms of the poor, raising the cost of political effort and reducing its benefits.

The extent of congruence is less clear for "non-income" characteristics. Two extreme cases will serve to illustrate the range of theoretical possibilities.

Case 1: Power and welfare respond identically to differences in non-income characteristics. We give two examples for this case. In the first and simplest example, power has no intrinsic value and so it only raises welfare through its effect on consumption, which is all the matters to welfare (i.e., $w = u$). In addition, suppose that:

(i) the power function is strictly concave in effort and additively separable between effort and characteristics ($\pi_{ex} = 0$);

(ii) the cost of effort depends solely on the amount of effort ($c_x = 0$).

Then it is immediate that $e_x = 0$ and that $p_x = \pi_x$ while $v_x = u_y \pi_x$. The monetary value of the welfare effect of a change in x is simply given by its effect on power.

To give a second example of Case 1, suppose instead that:

(i) welfare is utility, which is additively separable between consumption and power

($u_{yp} = 0$) and linear in power ($u_{pp} = 0$);

(ii) the cost and power functions are also additively separable ($c_{ex} = \pi_{ex} = 0$);

(iii) both power and its cost are linear in effort ($\pi_{ee} = 0$ and $c_{ee} = 0$).

Then it is immediate from (2) that $e_x = -c_x / c_e$. Recalling that $p_x = \pi_e e_x + \pi_x$, it follows that $p_x = -u_y c_x + \pi_x = v_x$ (using the fact that optimal effort requires that $u_y c_e = u_p \pi_e$). So in this special case, power and welfare commove perfectly with differences in individual characteristics.

Case 2: Power and welfare respond oppositely to non-income characteristics. As already noted, there may well be welfare effects of differences in x at given $y - c(e,x)$ and $\pi(e,x)$. However, even without these differences, one can readily construct special cases in which the effects go in opposite directions. Suppose that:

(i) the cost of political participation depends solely on one's effort, i.e., $c_x = 0$, and

(ii) there is a single non-income characteristic and more of this characteristic enhances power at given effort ($\pi_x > 0$) and does not decrease welfare at given utility.

So higher x entails higher welfare. The effect on power is ambiguous, however. The key unknown is how the non-income characteristic interacts with effort. Does higher x raise or lower the impact of differences in effort on power? (Or, equivalently, does greater effort magnify or attenuate the power differences associated with differences in x?) It is readily verified that the necessary and sufficient condition for power to also be increasing in x is that:

$$\pi_{ex} > \frac{\pi_x [J - \pi_e (u_{yp} c_e - u_{pp} \pi_e)]}{\pi_e u_p} < 0 \qquad (6)$$

If higher x enhances the power returns to effort ($\pi_{ex} > 0$) then clearly power and welfare will

respond the same way to differences in x. However, with a negative interaction effect ($\pi_{ex} < 0$) it is possible for power to be decreasing in x. This happens when higher x so reduces the marginal impact of extra effort on power that the optimal level of effort falls enough to entail lower realized power. Then, at given income, welfare and power will be negatively correlated.

The above discussion has looked at individuals in isolation. Will introducing households into the picture strengthen or weaken the association between personal power and welfare? If one assumes that both power and welfare are at least partially shared within households then the effect on the correlation between power and welfare across individuals will depend on the sorting process in household formation. If people with characteristics that yield low (high) power tend to match with people whose characteristics yield low (high) welfare then household formation will strengthen the correlation across individuals. On the other hand, if gains from trade are the dominant factor, such that initial inequalities in power between partners are at least partly offset by opposing welfare inequalities, then the correlation will be weakened.

However, the assumption that power and welfare are shared is not obviously plausible. There are two points to note. Firstly, while income transfers can allow sharing of economic welfare, the one redistributive instrument will not be sufficient to average out the differences in both power and welfare when people whose characteristics yield low power and high welfare prior to household formation pair up with those holding high power but low welfare. Another instrument would then be needed. Sharing knowledge relevant to power could serve this role.

Secondly, it may not be in the interests of the person with greater power to share that power within the household. Sharing knowledge relevant to power may switch the intra-household allocation of resources against the individual's interests. Analogously to the model of

Basu et al. (2002) on whether literacy is shared, if preferences differ sufficiently between the person with power and the person without it then power sharing will not occur.

The above discussion has suggested a number of reasons why there might be only a weak association between self-rated power and welfare. An important source of ambiguity is likely to lie in how power and welfare are jointly affected by "non-income" characteristics, and also in how these characteristics come to be associated through household formation. We will next see what our data for Russia suggest about the empirical association between power and welfare.

3. Evidence for Russia

We use the November-December 2000 and October 1998 rounds of the Russian Longitudinal Monitoring Survey (RLMS) obtainable from the RLMS web site: http://www.cpc.unc.edu/projects/rlms/rlms home.html. This covered a sample (in 2000) of 3800 households (8300 adults; 6700 with data for 1998).

All adults in the sampled households were asked the PLQ and WLQ given in the introduction. In both cases, we decided to condense the highest 7^{th}, 8^{th}, and 9^{th} rungs into one, because only a small number of respondents (less than one percent in both cases) put themselves on rungs 8 and 9. So, we treat the data as two seven-rung Cantril ladders.

Table 1 summarizes responses to the WLQ and PLQ from the 2000 survey. The row total gives the number of respondents in each power rung, while the column totals are for welfare. A standard measure of association for contingency tables is Cramer's V, which tests the null hypothesis of no association between the row variable and the column variable in the table (see, for example, Agresti, 1984). Cramer's V takes a value between 0 (no relationship) and 1 (perfect correlation). The value for the sample as a whole implied by Table 1 is 0.336 (with a

bootstrapped standard error of 0.006). For males, it is 0.331 (standard error of 0.009) while it is 0.343 (standard error of 0.009) for females. So we find a significant positive association between power ranks and welfare ranks. However, the matching between the two is clearly far from perfect. For example, of the 240 individuals who put themselves on the highest welfare rung, less than a half answered that they have the most power. For the poorest group 24% of respondents indicated that they did not see themselves as being the least powerful. On inspecting Table 1, it is evident that the greater source of mismatching is in the upper off-diagonal than the lower one, i.e., there are many people who do not think of themselves as poor but who feel relatively powerless. This pattern holds for both men and women.

In Table 2 we use the panel nature of the data to compare changes in power ranks with changes in welfare ranks from 1998 to 2000. (There were a few individuals whose welfare and/or power perceptions changed by more than four rungs between 2000 and 1998. We combine these into the top (+4) and the bottom (-4) categories.) Amongst all surveyed adults, 42.5% registered a higher ladder rung for their power in 2000 than 1998, while 45.3% did so for their welfare. On the other hand, 28.4% registered a lower power rung, and 25.5% showed a lower welfare rung. On associating the changes, we find that amongst those who felt that their power rose by a rung or more, 63.5% also registered a higher rung of the welfare ladder, while only 14.1% felt that their welfare had fallen. For those who registered a higher welfare rung, 59.6% also said that their power was at least one rung higher, while only 16.3% said that it had fallen a rung or more. There is a significant correlation overall; the Cramer's V for the sample as a whole is 0.223 (standard error of 0.006), while it is 0.208 (0.009) and 0.239 (0.009) for males and females respectively. The fact that we still find a significant association in the changes over time tells us

that the correlation in the levels evident in Table 1 is not entirely due to a common time-invariant individual effect, such as due to the respondent's personality.

4. Specification of a model of subjective power and welfare

In principle, one can identify a causal effect of perceived power on perceived welfare if there is a valid instrumental variable (IV) that is correlated with welfare but not correlated with power given welfare and other observed covariates. However, we do not believe a valid IV exists for this problem. Any variable that one can imagine as an influence on power would surely also be a potential influence on welfare independently of power. For example, where one lives will no doubt influence one's perceived welfare, but it could also influence power at given welfare, such as when areas differ in how much power over decision making is decentralized.

Instead we ask whether welfare and power share common covariates. Is there any variable that influences one but not the other, or has opposing effects? How much of the empirical association found in the last section is attributable to differences in the ways that these variables respond to observed covariates, versus other (latent) factors?

We build the analysis on explicit assumptions about the underlying continuous variables determining where one sees oneself on the ladder from "poor" to "rich" or from "least powerful" to "most powerful". The continuous variables for welfare and power (w and p) are assumed to be determined in part by functions $f^w(y_i, y_i^h)$ and $f^p(y_i, y_i^h)$ of individual income (y_i) and household per capita (y_i^h). We also allow for a vector of observable variables (x) that affect welfare and power at given incomes. In addition, we allow for unobservable variables, which we will lump into independent and identically normally distributed error terms ε_i^w and ε_i^p. Our

empirical models corresponding to equations (3) and (5) are then:

$$p_i = f^p(y_i, y_i^h) + x_i\beta^p + \varepsilon_i^p \tag{7.1}$$

$$w_i = f^w(y_i, y_i^h) + x_i\beta^w + \varepsilon_i^w \tag{7.2}$$

The impacts of inequality depend on the curvature of the functions $f^w(y_i, y_i^h)$ and $f^p(y_i, y_i^h)$; if the functions are strictly concave then inequality (in the sense of a mean-preserving spread) lowers mean power or welfare (section 2). In our estimation we assume that the functions $f^w(y_i, y_i^h)$ and $f^p(y_i, y_i^h)$ are second degree polynomials:[8]

$$f^p(y_i, y_i^h) = \alpha_1^p y_i + \alpha_2^p (y_i)^2 + \beta_1^p y_i^h + \beta_2^p (y_i^h)^2 \tag{8.1}$$

$$f^w(y_i, y_i^h) = \alpha_1^w y_i + \alpha_2^w (y_i)^2 + \beta_1^w y_i^h + \beta_2^w (y_i^h)^2 \tag{8.2}$$

Assuming level comparability of the ladder across persons, someone with $w < c_1$ (say) will respond that she is on the first rung of the economic ladder, while someone for whom $c_1 < w < c_2$ will be on the second, and so on up to the highest rung. Similarly, someone with $p < a_1$ will respond that he is on the first rung of the power ladder, someone with $a_1 < p < a_2$ will respond that he is on the second rung, etc. Given our assumption that the error terms are normally distributed, we can use an ordered probit to model the responses.

The effect of higher individual income on w and p can be decomposed into a direct effect (holding household income constant) and an indirect effect (via the change in household income). In a strict polling model of household decision making, the direct effect would be absent. Under our functional form assumptions, the effect of a gain in individual income holding

[8] We tested an alternative functional form that included interactions between the individual and household incomes. The interaction term coefficients were insignificantly different from zero in our estimations and we decided to proceed with the simpler specification.

other incomes in the household ($y_i^h n_i - y_i$) constant is given by:

$$\frac{\partial p}{\partial y_i} = [\alpha_1^p + 2\alpha_2^p y_i] + [\beta_1^p + 2\beta_2^p y_i^h]/n_i \tag{9.1}$$

$$\frac{\partial w_i}{\partial y_i} = [\alpha_1^w + 2\alpha_2^w y_i] + [\beta_1^w + 2\beta_2^w y_i^h]/n_i \tag{9.2}$$

To interpret these derivatives, notice that when individual income increases (decreases) it in turn increases (decreases) total household income. Thus the individual income effect comprises an effect arising from the change in individual income keeping the household income constant (the first of the right-hand-side terms in (9.1) and (9.2)), plus the effect via the change in household income (second of the right-hand-side terms in (9.1) and (9.2)).

5. Covariates of power and welfare

The income variable we use is total monthly disposable income, which includes wages and salaries, social security, private transfers, and imputed income in-kind and from home production. We initially assume that all income is exogenous to power, though we relax this later. To convert to real values we use region specific deflators based on Popkin et al., (1995). We also include geographic dummy variables that can help pick up errors in the deflators due to any omitted cost-of-living differences. The RLMS also includes household and individual characteristics of the respondents, which we use to control for heterogeneity at given incomes. The vector of explanatory variables includes individual characteristics such as respondents' age, age squared, dummy variables for education achievements and marital status. The demographic characteristics include the household size and size squared, and the shares of children, adult women and pensioners in the household.

We also examine the effect of employment status. A number of papers have found that unemployment lowers subjective welfare, even at given (current) incomes (Clark and Oswald, 1994; Oswald, 1997; Blanchflower and Oswald, 1997; Winkelmann and Winkelmann, 1998). There is less evidence on the effect on power and arguments have been made that point in both directions. The Marxian literature has viewed wage labor as "alienating." Against this view, it can be argued that (*ceteris paribus*) an unemployed person would feel less control over the things that matter to his welfare than someone with a job. Ross and Mirowsky (1992) find evidence of positive effects on perceived power of employment in the U.S.

We also include a dummy variable for whether the respondent is Russian or not (85% of the sample is Russian). Survey evidence for Western Europe and North America suggest that minorities often face discrimination and social exclusion that attenuates perceived welfare and power. For example, Ross and Mirowsky (1992) find that minority groups in the U.S. tend to have less "sense of control" over their lives. It is not clear, however, that the Russian setting would be similar in this respect, given that the minority groups in Russia typically did not stem from a history of migration (voluntary or otherwise) to deal with labor shortages. In a sample of 1,500 Soviet adults in 1990, Gibson (1993) finds that perceptions of governmental repression and self-censorship are uncorrelated with minority status (indeed, the reported (simple) correlation coefficients are less than 0.005 in both cases). Gibson's comparisons with similar data for the U.S. indicate larger differences in perceived constraints on political freedom between whites and African-Americans than found amongst Soviet citizens in 1990s. (Gibson's results suggest that African-Americans see themselves as absolutely less free than Soviet citizens.)

We also estimate a model in which we add attitudinal variables related to self-reported

health status and expectations about the future, following earlier work on subjective welfare in Russia (Ravallion and Lokshin, 2002). There are obvious concerns about the endogeneity of these variables. However, it will still be of interest to study their correlations with subjective power and welfare, and how their inclusion in the regressions affects other coefficients.

Summary statistics on the set of covariates we will use are given in Table 3.

6. Results

For the total sample, and for the samples of males and females separately, Table 4 presents the results of the ordered probits for welfare and power (this is the basic specification, without the attitudinal variables to be included later). Before we discuss the detailed results in Table 4, it is of interest to test the overall fit, by comparing the actual distributions of respondents across the welfare and power ladders with the models' predicted distributions. The results are given in Table 5. (We explain the simulated distributions in Table 5 below.) The fit is clearly quite good. Indeed, for power, the actual and predicted distributions across the ladder rungs are identical when rounded off to the nearest percentage point. This holds for males and females separately, as well as the full sample. The fit is equally good for welfare on the full sample, though when we split by gender a few cases emerge in which a difference in the distribution across ladder rungs persists when rounded off to the nearest percentage point.

6.1 Income effects

Focusing first on results for the total sample in Table 4, we see that in all cases the coefficients on the income variables indicate a concave relationship (as implied by the significant negative coefficient on the squared term). Figure 1 shows how the empirical functions $f^w(y_i, y_i^h)$ and $f^p(y_i, y_i^h)$ vary with household income evaluated at each data point for

individual income. On the graph we superimpose the non-parametrically estimated density of household per capita income (right vertical axes) on the scatter plot, while on the vertical (left) axes we graph the value of the function calculated for every level of household per capita income (horizontal axis) and individual income (the scatter points).

We find a positive relationship with household income over the bulk of the data, and it tends to be steeper for welfare than power. This also holds for individual income (Figure 2). We find a strong indication for both power and welfare that the latent continuous variable is concave in income. Thus higher inequality (in the usual sense of mean-preserving spreads) reduces both aggregate power and aggregate welfare.

To measure the contribution of inequality we simulate the effect on power and welfare of equalizing incomes. We do this in two ways. First we equalize incomes within households, so that actual individual incomes are replaced by the individual's own household income per capita; we then calculate the predicted distributions across welfare and power ladders. Secondly, we repeat this for full equalization of income per person across households.

Table 5 gives the results for these simulations. Even with complete equalization of incomes there is only a small drop in the proportion of respondents who rate themselves as being amongst the least powerful; the proportionate impact on the number who rate themselves as being on the poorest rung is only slightly greater than for power.[9] Partial equalization within families naturally has less impact, though a noticeably greater impact on the perceived power of women than men. (For women, modal power shifts up one rung with either partial or complete

[9] Notice that income equalization does not reduce the number in the most powerful cell in all cases; this is because the quadratic function reaches its maximum prior to the maximum income; however, there are very few observations above the turning point.

income equalization; but the quantitative effect is small.)

To help understand the individual income effect we do the decompositions in equation (9) at the mean values of individual income, total household per capita income, and household size for the total sample and for the samples of males and females. The results are given in Table 6. For the whole sample, 81% of the individual effect on perceived power is direct while the rest is transmitted via the gain in household income. For welfare the effect accounts for 73% of the income effect on welfare. The share that is indirect (via household income) is higher for women than men. However, the simple pooling model is clearly rejected for both men and women.

6.2 Other covariates

A number of significant covariates are found at given incomes. Male respondents tend to have higher perceived power, but there is no such difference in perceived welfare by gender. Younger respondents feel that they have less power (the maximum perceived power is attained at about 75 years of age) and have lower subjective welfare (the maximum is at the age of 65). Living in larger households increases subjective perceptions of both power and welfare. The presence of children 0-6 years of age in the household increases welfare and power.

Non-Russians in the sample tend to have higher perceived power and welfare; the effect is stronger for power than welfare, and stronger for males than females. This is not consistent with the arguments and evidence for Western Europe and North America, pointing to discrimination and social exclusion amongst minorities. As we have noted, the Russian setting is possibly rather different in this respect. It remains puzzling, however, that Russians see themselves as less powerful and with lower welfare than others. Possibly we are picking up a personality or cultural trait with little relationship to objective circumstances.

We find a strong effect of education on power and welfare. Individuals with university degrees and with technical or vocational degrees have significantly higher power and welfare in comparison to respondents with only a high school diploma. The effect of education is almost twice as high for power than for welfare.

Being unemployed lowers both power and welfare, though the effect of employment status is larger in the case of welfare.

Coefficients on the regional dummies indicate significant geographical effects on both power and welfare. Geographic proximity to the seat of political power clearly matters. Respondents from almost all regions feel less powerful than the respondents living in Moscow and Saint Petersburg, but the regional differences are generally less pronounced (and less significant statistically) for welfare.

Comparing the results for males and females reveals that while male welfare and power peaks around the age of 60, female power and welfare are increasing functions of age over the whole range of the data. We observe a stronger effect of education on the perceived power of males than females, but this difference disappears for welfare. Being divorced has a stronger (negative) effect on both power and welfare for women, though the effects are not statistically significant. Similarly to the results for the total sample, being unemployed decreases power and welfare for both men and women. However, the effect of unemployment on power is stronger for women than men, while the welfare effect is similar. Living in larger households has a positive and significant impact on the subjective power and welfare of females, but for males this effect is not significant. The presence of children age 0 to 6 years of age increases the perceived welfare of women, but does not have any significant effect on men's welfare. Having more women in

the household increases perceived power and welfare of men (though the effects cannot be considered statistically significant), but has no effect for women.

While we have noted a number of differences, broadly speaking our results suggest that the factors that determine subjective perceptions of economic welfare have similar effects on perceptions of power. Figure 3 shows the plots of the predicted levels of welfare and power. The two are strongly correlated for the total sample as well as for the samples of males and females separately. The correlation between these two indicators is stronger for females; the correlation coefficient for female predicted perceptions is 0.940 (with a standard error of 0.013) as compared to 0.875 (with the standard error of 0.033) for males.

6.3 Alternative specifications

One possible concern about the above results is that income may be exogenous in the regressions for power. In particular, it might be argued that higher personal power has a positive effect on income thus biasing our results. There is no obvious identification strategy; any potential instrument for individual income would be a potential covariate of welfare or power. However, we do not need to identify the structural relationship for the present purposes. To test whether our conclusions would hold under a different specification we simply re-estimate our model excluding the respondent's own income. Thus we drop the individual's own income and replace household income with its value net of the individual's income. This assumes that the endogeneity problem is individual-specific, i.e., that it does not spillover to the incomes of other household members.

The results are in Table 7. The main findings described above are quite robust to this change. One notable exception is that the squared term on income is no longer significant for

power; we cannot reject the null that the income effect is linear for power. Again we find that power and welfare perceptions are strongly correlated in the total sample for which the correlation coefficient between predicted values is 0.931 (with a standard error of 0.012); in the samples of males the correlation is 0.829 (0.029) and for females it is 0.944 (0.015).

Table 8 gives the extended specification in which we add the attitudinal variables on health and expectations for the future to the basic model in Table 4. For the WLQ the results echo earlier findings (Ravallion and Lokshin, 2002), namely that perceived ill-health reduces subjective welfare as does the expectation that things will get worse in the future. When we use these as additional regressors for PLQ we again find considerable agreement in how they impact on power and welfare. Ill-health attenuates perceived power as do expectations that things will get worse in the future. Other coefficients are reasonably robust with one notable exception: the significant positive effect of being male on perceived power vanishes in the extended model; this effect is attributable to the attitudinal difference. Again we find high correlations between the predicted values of power and welfare; for the full sample the correlation coefficient is 0.943 (standard error of 0.010), while it is 0.906 (0.022) for males and 0.950 (0.011) for females.

We explored further why the gender effect on power vanishes when we control for the attitudinal differences. On only adding the expectations variables the gender effect on power remains. On only adding the health variables the gender difference in power becomes insignificant. So the gender difference in perceived power is largely accountable to the fact that women tend to see themselves as less healthy than men (Table 3).

7. Conclusions

If "empowerment" of specific groups in society is to be seen as a distinct policy objective

to reducing poverty or inequality in terms of economic welfare then one should be able to establish that power is allocated differently. But how can we assess how power is assigned to people? We have tried to see what can be learnt from self-perceptions of power as reported in an unusual data set for Russia, which combined subjective data on power and welfare with the standard objective data collected in socio-economic surveys.

We find that the self-assessed power of Russian adults is significantly correlated with their economic welfare, both as they perceive it and by conventional objective measures. It could hardly be deemed a very strong correlation. Consider those people on the lowest two rungs of the subjective welfare ladder (about the poorest quarter of the sample) and those on the lowest rung of the power ladder (also about one quarter). We find that only about half those who are poor by this definition see themselves as powerless. The main reason why the correlation is not stronger is that many people (both men and women) who do not see themselves as poor feel that they have little power. We find that 42% of the sample placed themselves on a lower rung of the power ladder than of the welfare ladder; by contrast, less than half as many (18%) put themselves on a higher power rung than their welfare rung. The scope for empowerment in Russia is clearly not confined to the poor, at least as they perceive it.

When we look at the changes over time, we also find a statistically significant correlation between power and welfare. Perceived welfare gains (losses) are more likely to come with gains (losses) in perceived power. For only 13% of respondents did perceived welfare and perceived power move in the opposite direction between 1998 and 2000. However, it remains that 40% of those who felt that their welfare had risen by a rung or more did not feel that they had reached a higher rung on the power ladder. And a slightly smaller proportion of those who felt that their

power had risen by a rung or more did not feel that they had risen on the welfare ladder.

The seemingly weak (though still significant) unconditional association that we find between power and welfare in both levels and changes might be taken to suggest that there is ample scope for an empowerment policy agenda that is qualitatively different to that for raising economic welfare. However, this is not so clear when we turn to modeling the power and welfare rankings as functions of observed (objective) covariates. Indeed, we are struck by the similarity in observable covariates. Granted, we do find some differences. For example, gender is more important to power that it is to welfare, with women feeling that they have less power *ceteris paribus*; this effect is largely attributable to differences in perceived health; controlling for this difference (and other covariates) there is no significant gender effect on perceived power. To give another example, unemployment reduces power more that it reduces welfare (though it is a strong determinant of both).

Nonetheless, looking at the results as a whole, we are drawn to conclude that there is strong agreement in how perceptions of power and welfare react to differences in individual and household characteristics. The predicted values show a very high correlation (around 0.9, and even higher for men and women separately). The much weaker unconditional correlation between perceived power and perceived welfare is driven by idiosyncratic factors that are not readily accountable in terms of observable characteristics in our survey. The fact that the characteristics that are good for raising individual economic welfare are also good for empowerment (albeit with some subtle differences) suggests that any scope for distinct policies largely rests with the idiosyncratic differences that we have not been able to account for. It remains unclear to what extent those differences are amenable to policy.

Amongst the covariates we have focused on, the importance of income is notable since it is the variable that many economic events and policies act through. Higher income tends to come with greater perceived power as well as higher welfare. The bulk of the individual income effect is via own income rather than through household income, implying a clear rejection of the simple pooling model (though less so for women than men). There are diminishing returns to income for both power and welfare (though for power, this is not robust to specification changes). Consistently with seemingly plausible theoretical assumptions, the curvature of the relationship with income indicates that income inequality attenuates both aggregate power and welfare, though the effect is not quantitatively large.

While our results suggest that income differences matter similarly to both power and welfare, that does not justify a narrow focus on incomes. Echoing past work in the literature, we find many significant covariates of welfare at given incomes, suggesting that peoples' perceptions of how "poor" they are affected by many other things than their incomes, either individually or at the household level. What is striking about our findings is that these same things also determine their perceptions of power.

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Table 1: Contingency table of welfare and power ranks, Russia 2000

(a) Full sample

Cramer's V=0.336		Welfare rank							
		1 (Poorest)	*2*	*3*	*4*	*5*	*6*	*7 (Richest)*	***Total***
Power rank	*1 (Least powerful)*	629	356	386	216	202	36	15	1840
	2	98	514	410	261	199	22	8	1512
	3	40	183	645	371	288	61	17	1605
	4	26	63	219	536	268	92	12	1216
	5	26	35	157	233	767	130	38	1386
	6	4	9	26	77	97	127	48	388
	7 (Most powerful)	3	8	18	30	68	91	102	320
	Total	826	1168	1861	1724	1889	559	240	8267

(b) Males only

Cramer's V=0.331		Welfare rank							
		1 (Poorest)	*2*	*3*	*4*	*5*	*6*	*7 (Richest)*	***Total***
Power rank	*1 (Least powerful)*	43	122	149	90	77	13	6	705
	2	35	207	180	114	87	10	4	637
	3	16	67	303	173	127	34	9	729
	4	9	36	105	235	118	31	5	537
	5	9	19	77	106	361	61	20	653
	6	2	7	10	36	51	52	29	187
	7 (Most powerful)	1	4	8	19	37	43	35	157
	Total	320	462	832	771	858	244	118	3605

(c) Females only

Cramer's V=0.343		Welfare rank							
		1 (Poorest)	*2*	*3*	*4*	*5*	*6*	*7 (Richest)*	***Total***
Power rank	*1 (Least powerful)*	385	234	237	126	125	23	9	1135
	2	63	307	230	147	112	12	4	875
	3	24	116	342	198	161	27	8	876
	4	17	27	114	303	150	61	7	679
	5	17	16	80	127	406	69	18	733
	6	2	2	16	41	46	75	19	201
	7 (Most powerful)	2	4	10	11	31	48	57	163
	Total	506	706	1029	953	1031	315	122	4662

Table 2: Movements up and down the power and welfare ladders, 1998-2000

(a) Full sample

Cramer's V =0.212		Change in welfare rank									
		-4	*-3*	*-2*	*-1*	*0*	*+1*	*+2*	*+3*	*+4*	*Total*
Change in power rank	*-4*	166	19	27	44	70	32	26	15	7	324
	-3	11	150	43	30	53	23	9	1	0	195
	-2	11	27	406	94	130	63	18	13	7	437
	-1	15	30	82	903	265	169	62	20	9	858
	0	26	21	98	271	1865	398	193	75	31	1853
	+1	7	17	44	148	316	1435	178	69	33	1182
	+2	5	7	25	68	151	203	842	74	32	755
	+3	4	2	9	34	88	82	86	391	30	416
	+4	3	2	4	8	52	95	80	43	223	361
Total		166	150	406	903	1865	1435	842	391	223	6381

(b) Males only

Cramer's V =0.203		Change in welfare rank									
		-4	*-3*	*-2*	*-1*	*0*	*+1*	*+2*	*+3*	*+4*	*Total*
Change in power rank	*-4*	73	8	14	21	25	14	5	8	3	134
	-3	5	66	14	15	27	13	3	0	0	85
	-2	4	11	181	49	53	28	12	7	5	204
	-1	6	15	38	390	126	63	28	7	3	372
	0	11	8	46	107	804	152	76	30	10	740
	+1	4	10	22	60	143	597	77	21	16	511
	+2	3	5	4	32	65	92	342	27	14	315
	+3	2	1	4	16	43	38	33	152	15	187
	+4	2	0	4	4	22	39	35	17	90	147
Total		73	66	181	390	804	597	342	152	90	2695

(b) Females only

Cramer's V =0.223		Change in welfare rank									
		-4	*-3*	*-2*	*-1*	*0*	*+1*	*+2*	*+3*	*+4*	*Total*
Change in power rank	*-4*	45	11	13	23	45	18	21	7	4	190
	-3	6	47	29	15	26	10	6	1	0	110
	-2	7	16	59	45	77	35	6	6	2	233
	-1	9	15	44	120	139	106	34	13	6	486
	0	15	13	52	164	440	246	117	45	21	1113
	+1	3	7	22	88	173	212	101	48	17	671
	+2	2	2	21	36	86	111	117	47	18	440
	+3	2	1	5	18	45	44	53	46	15	229
	+4	1	2	0	4	30	56	45	26	50	214
Total		93	84	225	513	1061	838	500	239	133	3686

Table 3: Summary statistics

	Full sample		Males		Females	
	Mean	*Std. Err.*	Mean	Std. Err.	Mean	Std. Err.
Income per capita	0.14	*0.21*	0.144	*0.215*	0.138	*0.205*
Individual income	0.13	*0.211*	0.163	*0.255*	0.105	*0.164*
Individual characteristics						
Male	0.436	—				
Age	42.61	*18.54*	40.46	*17.44*	44.28	*19.18*
Education dummies						
Non-Russian	0.152	—	0.154	—	0.152	—
High school	0.518	—	0.549	—	0.494	—
Technical or vocational	0.322	—	0.299	—	0.34	—
University	0.153	—	0.15	—	0.156	—
Marital status dummies						
Single	0.188	—	0.216	—	0.166	—
Married	0.625	—	0.709	—	0.561	—
Divorced	0.068	—	0.043	—	0.088	—
Widowed	0.117	—	0.031	—	0.184	—
Self-evaluation of health						
Very good	0.023	—	0.034	—	0.015	—
Good	0.262	—	0.328	—	0.212	—
Normal	0.540	—	0.508	—	0.564	—
Bad	0.142	—	0.109	—	0.168	—
Very bad	0.032	—	0.020	—	0.041	—
Expectations about life						
Expects to live better	0.228	—	0.248	—	0.212	—
Expects no changes	0.546	—	0.542	—	0.548	—
Expects to live worse	0.226	—	0.210	—	0.239	—
Household characteristics						
Household size	3.328	*1.559*	3.47	*1.516*	3.219	*1.582*
Share of children 0-6 years old	0.056	*0.117*	0.056	*0.117*	0.056	*0.118*
Share of children 6-14 years old	0.148	*0.19*	0.15	*0.188*	0.147	*0.191*
Share of adult women	0.286	*0.214*	0.259	*0.176*	0.308	*0.237*
Share of pensioners	0.244	*0.363*	0.211	*0.341*	0.269	*0.377*
Regional dummies						
Rural households	0.284	—	0.285	—	0.283	—
Moscow and Saint Petersburg	0.048	—	0.048	—	0.047	—
Northern and Northwest	0.066	—	0.065	—	0.067	—
Central Black-Earth	0.197	—	0.191	—	0.201	—
Volga-Vaytski and Volga	0.191	—	0.192	—	0.191	—
North Caucasian	0.145	—	0.149	—	0.141	—
Ural	0.151	—	0.148	—	0.154	—
Western Siberian	0.098	—	0.098	—	0.097	—
Eastern Siberia and Far East	0.104	—	0.108	—	0.101	—
N	8266		3538		4728	

Table 4: Ordered probits for power and welfare ranks

	Full sample				Males				Females			
	Power rank		Welfare rank		Power rank		Welfare rank		Power rank		Welfare rank	
	Coeff.	*S.Err.*	Coeff.	*S.Err.*	Coeff.	*S.Err.*	Coeff.	*S Err.*	Coeff.	*S.Err.*	Coeff.	*S.Err.*
Income per capita	1.270	*0.237*	2.363	*0.229*	1.462	*0.379*	2.316	*0.362*	1.105	*0.309*	2.400	*0.299*
Income per capita2	-1.019	*0 296*	-1 612	*0.280*	-1.652	*0.480*	-1.713	*0.444*	-0.656	*0.388*	-1.629	*0.366*
Individual income	1.144	*0.220*	1.478	*0.217*	0.899	*0.313*	1.741	*0.309*	1.376	*0.323*	1.214	*0.318*
Individual income2	-1.048	*0.295*	-1.232	*0.291*	-0.813	*0.399*	-1.738	*0.394*	-1.143	*0.454*	-0.532	*0.449*
Individual characteristics												
Male	0.056	*0.026*	-0.014	*0.026*								
Female	*Reference*											
Age	-0.029	*0.004*	-0.040	*0.004*	-0.038	*0.007*	-0.046	*0.007*	-0.023	*0.005*	-0.035	*0.005*
Age2/100	0.020	*0.005*	0.030	*0.004*	0.031	*0.008*	0.038	*0.008*	0.013	*0.006*	0.025	*0.005*
Single	*Reference*											
Married	-0.005	*0.046*	0.100	*0.045*	0.048	*0.078*	0.138	*0.077*	-0.066	*0 063*	0.029	*0.062*
Divorced	-0.069	*0.064*	-0.069	*0.062*	0.038	*0.113*	0.034	*0.110*	-0.117	*0.079*	-0.117	*0.077*
Widowed	-0.052	*0.065*	-0.069	*0.063*	0.111	*0.136*	-0.061	*0.133*	-0.094	*0.079*	-0.092	*0.076*
Unemployed	-0.183	*0.045*	-0.258	*0.044*	-0.124	*0.062*	-0.263	*0.061*	-0.238	*0.066*	-0.231	*0.065*
Russian	*Reference*											
Non-Russian	0.188	*0.035*	0.140	*0.034*	0.270	*0.053*	0.216	*0.052*	0.127	*0.046*	0.086	*0.045*
Education												
High School	*Reference*											
Technical/Vocational	0.073	*0.028*	0.067	*0.028*	0.124	*0.043*	0.051	*0.043*	0 035	*0.038*	0.081	*0.037*
University	0.316	*0.037*	0.152	*0.037*	0.394	*0.057*	0.160	*0.056*	0.258	*0.050*	0.151	*0.049*
Household characteristics												
Household size	0.070	*0.027*	0.105	*0.026*	0.044	*0.043*	0.088	*0.042*	0.088	*0.036*	0.114	*0.035*
Household size2	-0.002	*0.003*	-0.007	*0.003*	-0.001	*0.004*	-0.006	*0.004*	-0.004	*0.004*	-0.007	*0.004*
Share of children 0-6 y/o	0.218	*0.130*	0.332	*0.128*	0.231	*0.208*	0.218	*0.205*	0.183	*0.173*	0.390	*0.170*
Share of children 7-14 y/o	-0.082	*0.088*	0.107	*0.086*	-0.034	*0.136*	0.265	*0.133*	-0.169	*0.126*	-0.037	*0.123*
Share of women	0.070	*0.092*	0.136	*0.090*	0.214	*0.175*	0.317	*0.172*	-0.063	*0.131*	-0.005	*0.128*
Share of pensioners	-0.120	*0.074*	0.104	*0.072*	-0.110	*0.122*	0.106	*0.120*	-0.167	*0.106*	0.075	*0.103*
Urban	*Reference*											
Rural	0.040	*0.029*	0.047	*0.028*	0.057	*0.044*	0.040	*0.044*	0.027	*0.038*	0.051	*0.036*
Regional dummies												
Moscow and St. Petersburg	*Reference*											
Northern and Northwest	-0.306	*0 072*	-0 095	*0.070*	-0.461	*0.111*	-0.130	*0.108*	-0.196	*0.096*	-0.058	*0.093*
Central Black-Earth	-0.126	*0.061*	-0.021	*0.059*	-0.115	*0.093*	0.056	*0.091*	-0.137	*0.080*	-0.070	*0.079*
Volga-Vaytski and Volga	-0 123	*0.061*	-0.052	*0.060*	-0.144	*0.094*	-0.043	*0.092*	-0.115	*0.081*	-0.055	*0.080*
North Caucasian	0.155	*0.065*	0.287	*0.064*	0.063	*0.098*	0.220	*0.097*	0.217	*0.086*	0.344	*0.084*
Ural	-0.082	*0.063*	0.105	*0.061*	-0.058	*0.095*	0.144	*0.094*	-0.100	*0.083*	0.080	*0.081*
Western Siberian	-0.090	*0.067*	0.015	*0.066*	-0.157	*0.103*	0 070	*0.101*	-0.046	*0.089*	-0.021	*0.087*
Eastern Siberia and Far East	0.010	*0.066*	0.105	*0.065*	-0.017	*0.100*	0.150	*0.098*	0.030	*0.088*	0.076	*0.086*

Auxiliary parameters												
c1	-1.148	*0.130*	-1.506	*0.127*	-1.350	*0.203*	-1.532	*0.200*	-1.143	*0.177*	-1.532	*0.173*
c2	-0.587	*0.129*	-0.877	*0.126*	-0.789	*0.202*	-0.915	*0.199*	-0.579	*0.177*	-0.893	*0.172*
c3	-0.058	*0.129*	-0.205	*0.126*	-0.237	*0.202*	-0.205	*0.199*	-0.066	*0.177*	-0.245	*0.172*
c4	0.383	*0.129*	0.372	*0.126*	0.200	*0.202*	0.381	*0.199*	0.381	*0.177*	0.327	*0.172*
c5	1.142	*0.130*	1.286	*0.127*	0.969	*0.203*	1.305	*0.200*	1.133	*0.178*	1.237	*0.173*
c6	1.581	*0.131*	1.926	*0.129*	1.416	*0.205*	1.908	*0.203*	1.568	*0.179*	1.910	*0.176*
Aldrich-Nelson pseudo R^2	0.138		0.155		0.127		0.147		0.148		0.166	
Log likelihood	-13852.034		-13937.598		-6014.005		-5944.830		-7817.901		-7972.113	
N	8266				3538				4728			

Table 5: Actual and predicted distributions of welfare and power with simulated distributions under income equality

		Power rank				Welfare rank			
	Rungs	Actual	Predicted	Simulated		Actual	Predicted	Simulated	
				Intra-household income equality	Complete income equality			Intra-household income equality	Complete income equality
Full sample	Lowest	22.68	22.69	22.14	21.87	10.20	10.08	9.76	9.17
	2	18.40	18.44	18.21	18.34	14.30	14.41	14.08	14.02
	3	19.51	19.52	19.45	19.66	22.63	22.93	22.59	23.04
	4	14.72	14.64	14.72	14.86	20.85	20.69	20.63	21.19
	5	16.57	16.55	16.89	16.90	22.72	22.52	22.90	23.17
	6	4.57	4.62	4.81	4.73	6.56	6.58	6.92	6.67
	Highest	3.54	3.54	3.79	3.62	2.74	2.80	3.12	2.73
Males	Lowest	20.12	20.04	19.85	19.65	9.13	9.33	9.20	8.64
	2	17.65	17.70	17.61	17.71	13.04	13.80	13.69	13.63
	3	20.47	20.49	20.46	20.62	23.44	22.57	22.45	22.88
	4	15.07	14.98	15.01	15.11	21.39	20.90	20.86	21.40
	5	17.83	17.85	17.97	17.99	23.55	23.37	23.47	23.73
	6	5.02	5.07	5.14	5.08	6.48	7.00	7.14	6.90
	Highest	3.85	3.86	3.96	3.83	2.97	3.03	3.19	2.82
Females	Lowest	24.61	24.70	23.74	23.41	11.01	10.65	10.18	9.58
	2	18.96	18.98	18.59	18.77	15.24	14.87	14.37	14.31
	3	18.79	18.79	18.68	18.95	22.03	23.19	22.70	23.16
	4	14.46	14.38	14.54	14.72	20.44	20.53	20.45	21.03
	5	15.63	15.57	16.14	16.16	22.10	21.88	22.47	22.76
	6	4.24	4.28	4.59	4.50	6.62	6.26	6.76	6.51
	Highest	3.31	3.30	3.72	3.50	2.57	2.62	3.06	2.66

Table 6: Decomposition of the individual income effects

	Power rank function		Welfare rank function	
	Share due to the direct effect of individual Income	*Standard error**	Share due to the direct effect of individual Income	*Standard error**
Total	0.821	*0.081*	0.730	*0.048*
Males	0.827	*0.231*	0.783	*0.103*
Females	0.791	*0.157*	0.689	*0.132*

* Standard Errors are calculated by the bootstrap method.

Table 7: Ordered probits for power and welfare ranks without individual income

	Full sample				Males				Females			
	Power rank		Welfare rank		Power rank		Welfare rank		Power rank		Welfare rank	
	Coeff.	*S.Err.*	Coeff.	*S.Err.*	Coeff.	*S.Err.*	Coeff.	*S.Err*	Coeff.	*S.Err.*	Coeff.	*S Err.*
Other income per capita*	0.740	*0.216*	1.777	*0.212*	0.684	*0.345*	1.664	*0.337*	0.799	*0.282*	1.933	*0.276*
Other income per capita^2	-0.478	*0.325*	-1.116	*0 319*	-0.953	*0.520*	-1.156	*0.504*	-0.267	*0.424*	-1.195	*0.416*
Individual characteristics												
Male	0.101	*0.026*	0.059	*0.025*								
Female	*Reference*											
Age	-0.024	*0.004*	-0.032	*0.004*	-0.037	*0.007*	-0.042	*0.007*	-0.017	*0.005*	-0.027	*0.005*
Age2/100	0.015	*0.005*	0.023	*0.004*	0.029	*0.008*	0.034	*0.008*	0.007	*0.006*	0.018	*0.005*
Single	*Reference*											
Married	0.034	*0.046*	0.154	*0.045*	0.119	*0.076*	0.279	*0.075*	-0.051	*0.063*	0.043	*0.061*
Divorced	-0.033	*0.064*	-0.007	*0.062*	0.072	*0.112*	0.115	*0.110*	-0.090	*0.079*	-0.079	*0.077*
Widowed	-0.003	*0.064*	0.014	*0.063*	0.177	*0.135*	0.086	*0.132*	-0.068	*0.079*	-0.054	*0.076*
Unemployed	-0.259	*0.044*	-0.372	*0.043*	-0.193	*0.061*	-0.386	*0.060*	-0.316	*0.065*	-0.333	*0.064*
Russian	*Reference*											
Non-Russian	0.189	*0.035*	0.141	*0.034*	0.272	*0.053*	0.220	*0.052*	0.124	*0.046*	0.082	*0.045*
Education												
High School	*Reference*											
Technical/Vocational	0.100	*0.028*	0.107	*0.028*	0 144	*0.043*	0.091	*0.042*	0.066	*0.038*	0.121	*0.037*
University	0.393	*0.036*	0.272	*0.036*	0.463	*0 056*	0.285	*0.055*	0.342	*0.048*	0.267	*0.047*
Household characteristics												
Household size	0.034	*0.028*	0.031	*0.027*	0.022	*0.043*	0.034	*0.042*	0.043	*0.037*	0.032	*0.035*
Household size2	0.000	*0.003*	-0.002	*0.003*	0.001	*0.004*	-0.002	*0.004*	0.000	*0.004*	-0.001	*0.004*
Share of children 0-6 y/o	0.225	*0.130*	0.368	*0.128*	0.219	*0.208*	0.226	*0.204*	0.183	*0.174*	0.407	*0 170*
Share of children 7-14 y/o	-0.070	*0 087*	0.147	*0.086*	-0.085	*0.135*	0.176	*0.132*	-0.104	*0.126*	0.074	*0.123*
Share of women	0 117	*0.092*	0.214	*0.090*	0.181	*0.175*	0.210	*0.172*	0.025	*0.131*	0.128	*0.128*
Share of pensioners	-0.129	*0.074*	0.088	*0.072*	-0.153	*0.122*	0.004	*0.119*	-0.154	*0.106*	0.097	*0.103*
Urban	*Reference*											
Rural	0 040	*0.029*	0.047	*0.028*	0.057	*0.044*	0.040	*0.044*	0.027	*0.038*	0.051	*0.036*
Regional dummies												
Moscow and St. Petersburg	*Reference*											
Northern and Northwest	-0.318	*0.072*	-0.118	*0.070*	-0.460	*0.111*	-0.131	*0.108*	-0.225	*0.095*	-0.115	*0.093*
Central Black-Earth	-0.171	*0.060*	-0.096	*0.059*	-0.153	*0.092*	-0.009	*0.091*	-0.195	*0.080*	-0.164	*0.078*
Volga-Vaytski and Volga	-0.195	*0.061*	-0.167	*0 060*	-0.215	*0.093*	-0.165	*0.091*	-0.191	*0.081*	-0.173	*0.079*
North Caucasian	0.103	*0.064*	0.201	*0.063*	0.018	*0.098*	0.138	*0.096*	0.153	*0 086*	0.247	*0.084*
Ural	-0.130	*0.062*	0.020	*0.061*	-0.095	*0.095*	0.079	*0 093*	-0.165	*0.082*	-0.027	*0.081*
Western Siberian	-0.140	*0.067*	-0.064	*0 065*	-0.206	*0.102*	-0.015	*0.100*	-0.101	*0.089*	-0.104	*0.086*
Eastern Siberia and Far East	-0.019	*0.066*	0 055	*0.064*	-0.039	*0.099*	0.103	*0.098*	-0.007	*0.088*	0.013	*0.086*

Auxiliary parameters												
C1	-1.290	*0.126*	-1.725	*0.123*	-1.584	*0.196*	-1.916	*0.194*	-1.249	*0.172*	-1.727	*0.169*
c2	-0.732	*0.125*	-1.107	*0.123*	-1.027	*0.195*	-1.312	*0.192*	-0.688	*0.172*	-1.097	*0.168*
c3	-0.207	*0.125*	-0.446	*0.122*	-0.478	*0.194*	-0.616	*0.192*	-0.179	*0.172*	-0.460	*0.167*
c4	0.232	*0.125*	0.122	*0.122*	-0.043	*0.194*	-0.041	*0.191*	0.265	*0.172*	0.105	*0.167*
c5	0.985	*0.126*	1.023	*0.123*	0.721	*0.195*	0.872	*0.192*	1.010	*0.173*	1.000	*0.168*
c6	1.420	*0.127*	1.656	*0.125*	1.165	*0.197*	1.470	*0.195*	1.441	*0.174*	1.662	*0.171*
Aldrich-Nelson pseudo R^2	0.133		0.150		0.122		0.142		0.144		0.161	
Log likelihood	-13899.144		-14056.09		-6033.2785		-6000.5899		-7847.0748		-8037.1467	
N	8266				3538				4728			

Table 8: Ordered probits for power and welfare ranks including attitudinal variables on health and expectations

	Full sample				Males				Females			
	Power rank		Welfare rank		Power rank		Welfare rank		Power rank		Welfare rank	
	Coeff.	*S.Err.*	Coeff.	*S.Err.*	Coeff.	*S.Err.*	Coeff.	*S.Err.*	Coeff.	*S.Err.*	Coeff.	*S.Err.*
Income per capita	1.342	*0.259*	2.462	*0.251*	1.182	*0.409*	2.325	*0.398*	1.405	*0.338*	2.570	*0.327*
Income per capita2	-1.097	*0.317*	-1.827	*0.300*	-1.317	*0.501*	-1.885	*0.478*	-1.019	*0.417*	-1.881	*0.391*
Individual income	0.971	*0.241*	1.329	*0.238*	0.915	*0.344*	1.703	*0.341*	0.979	*0.353*	0.906	*0.348*
Individual income2	-0.997	*0.322*	-1.242	*0.319*	-0.929	*0.441*	-1.910	*0.438*	-0.869	*0.487*	-0.341	*0.482*
Individual characteristics												
Male	0.028	*0.029*	-0.039	*0.028*								
Female	*Reference*											
Age	-0.017	*0.005*	-0.032	*0.005*	-0.032	*0.008*	-0.044	*0.008*	-0.008	*0.006*	-0.025	*0.006*
Age2/100	0.005	*0.029*	0.005	*0.033*	0.009	*0.045*	0.009	*0.005*	0.007	*0.021*	0.006	*0.000*
Single	*Reference*											
Married	-0.046	*0.051*	0.047	*0.050*	0.020	*0.085*	0.095	*0.085*	-0.085	*0.069*	-0.007	*0.068*
Divorced	-0.069	*0.071*	-0.113	*0.070*	0.034	*0.130*	-0.002	*0.127*	-0.114	*0.087*	-0.155	*0.086*
Widowed	-0.023	*0.071*	-0.065	*0.070*	0.093	*0.149*	-0.161	*0.147*	-0.034	*0.087*	-0.054	*0.085*
Unemployed	-0.220	*0.050*	-0.297	*0.050*	-0.181	*0.070*	-0.356	*0.069*	-0.265	*0.074*	-0.204	*0.073*
Russian	*Reference*											
Non-Russian	0.177	*0.039*	0.153	*0.038*	0.279	*0.060*	0.225	*0.059*	0.102	*0.052*	0.104	*0.051*
Education												
High School	*Reference*											
Technical/Vocational	0.047	*0.031*	0.060	*0.031*	0.082	*0.048*	0.042	*0.047*	0.025	*0.042*	0.080	*0.041*
University	0.283	*0.041*	0.141	*0.040*	0.348	*0.062*	0.152	*0.062*	0.234	*0.054*	0.140	*0.053*
Self-evaluation of health												
Very good	*Reference*											
Good	-0.095	*0.089*	0.131	*0.088*	-0.061	*0.114*	0.106	*0.112*	-0.129	*0.144*	0.155	*0.146*
Normal	-0.325	*0.090*	0.005	*0.089*	-0.356	*0.116*	-0.069	*0.114*	-0.307	*0.144*	0.061	*0.146*
Bad	-0.617	*0.097*	-0.303	*0.096*	-0.630	*0.132*	-0.348	*0.130*	-0.606	*0.151*	-0.260	*0.152*
Very bad	-0.797	*0.124*	-0.742	*0.121*	-0.905	*0.197*	-0.842	*0.192*	-0.739	*0.176*	-0.670	*0.175*
Expectations about life												
Expect to live better	0.283	*0.033*	0.268	*0.033*	0.211	*0.049*	0.208	*0.049*	0.344	*0.045*	0.318	*0.045*
Expect no change	*Reference*											
Expect to live worse	-0.355	*0.034*	-0.423	*0.033*	-0.316	*0.053*	-0.426	*0.052*	-0.380	*0.044*	-0.423	*0.042*
Household characteristics												
Household size	0.083	*0.030*	0.112	*0.029*	0.033	*0.048*	0.087	*0.046*	0.124	*0.039*	0.135	*0.038*
Household size2	-0.004	*0.003*	-0.009	*0.003*	0.000	*0.005*	-0.007	*0.005*	-0.008	*0.004*	-0.010	*0.004*
Share of children 0-6 y/o	0.087	*0.143*	0.191	*0.141*	0.018	*0.229*	0.043	*0.228*	0.121	*0.190*	0.269	*0.186*
Share of children 7-14 y/o	-0.151	*0.097*	0.135	*0.095*	-0.201	*0.151*	0.247	*0.149*	-0.147	*0.139*	0.024	*0.137*
Share of women	0.026	*0.102*	0.146	*0.100*	-0.010	*0.194*	0.175	*0.192*	0.033	*0.145*	0.086	*0.141*
Share of pensioners	-0.167	*0.082*	0.113	*0.080*	-0.298	*0.135*	-0.034	*0.134*	-0.097	*0.116*	0.176	*0.113*
Urban	*Reference*											
Rural	0.051	*0.032*	0.079	*0.031*	0.072	*0.049*	0.072	*0.049*	0.037	*0.041*	0.084	*0.040*

Regional dummies												
Moscow and St. Petersburg							*Reference*					
Northern and Northwest	-0.162	*0.082*	-0.004	*0.080*	-0.305	*0.128*	-0.076	*0.125*	-0.070	*0.107*	0.062	*0.105*
Central Black-Earth	-0.092	*0.068*	-0.044	*0.067*	-0.081	*0.105*	-0.041	*0.103*	-0.102	*0.090*	-0.035	*0.089*
Volga-Vaytski and Volga	-0.094	*0.069*	-0.071	*0.068*	-0.104	*0.106*	-0.148	*0.104*	-0.093	*0.091*	-0.011	*0.090*
North Caucasian	0.097	*0.073*	0.245	*0.072*	0.023	*0.112*	0.115	*0.110*	0.143	*0.096*	0.347	*0.095*
Ural	-0.048	*0.071*	0.125	*0.070*	0.013	*0.109*	0.128	*0.108*	-0.097	*0.094*	0.131	*0.092*
Western Siberian	-0.098	*0.075*	-0.039	*0.073*	-0.147	*0.116*	-0.052	*0.113*	-0.068	*0.099*	-0.023	*0.097*
East Siberia and Far East	0.069	*0.073*	0.093	*0.072*	0.062	*0.112*	0.081	*0.110*	0.072	*0.097*	0.106	*0.096*
Auxiliary parameters												
c1	-1.167	*0.166*	-1.397	*0.164*	-1.607	*0.249*	-1.741	*0.247*	-0.944	*0.238*	-1.163	*0.236*
c2	-0.598	*0.166*	-0.740	*0.164*	-1.040	*0.249*	-1.087	*0.246*	-0.370	*0.238*	-0.502	*0.236*
c3	-0.062	*0.166*	-0.038	*0.163*	-0.475	*0.248*	-0.334	*0.245*	0.148	*0.238*	0.169	*0.235*
c4	0.400	*0.166*	0.563	*0.163*	-0.013	*0.248*	0.273	*0.245*	0.612	*0.238*	0.768	*0.236*
c5	1.177	*0.167*	1.494	*0.164*	0.770	*0.249*	1.200	*0.246*	1.387	*0.239*	1.708	*0.236*
c6	1.628	*0.168*	2.144	*0.166*	1.220	*0.250*	1.825	*0.248*	1.843	*0.240*	2.385	*0.239*
Aldrich-Nelson pseudo R^2	0.148		0.169		0.134		0.167		0.155		0.173	
Log likelihood	-11364.936		-11248.187		-4913.829		-4776.682		-6429.803		-6446.972	
N	6588				2816				3772			

Figure 1: Power and welfare against household income per capita

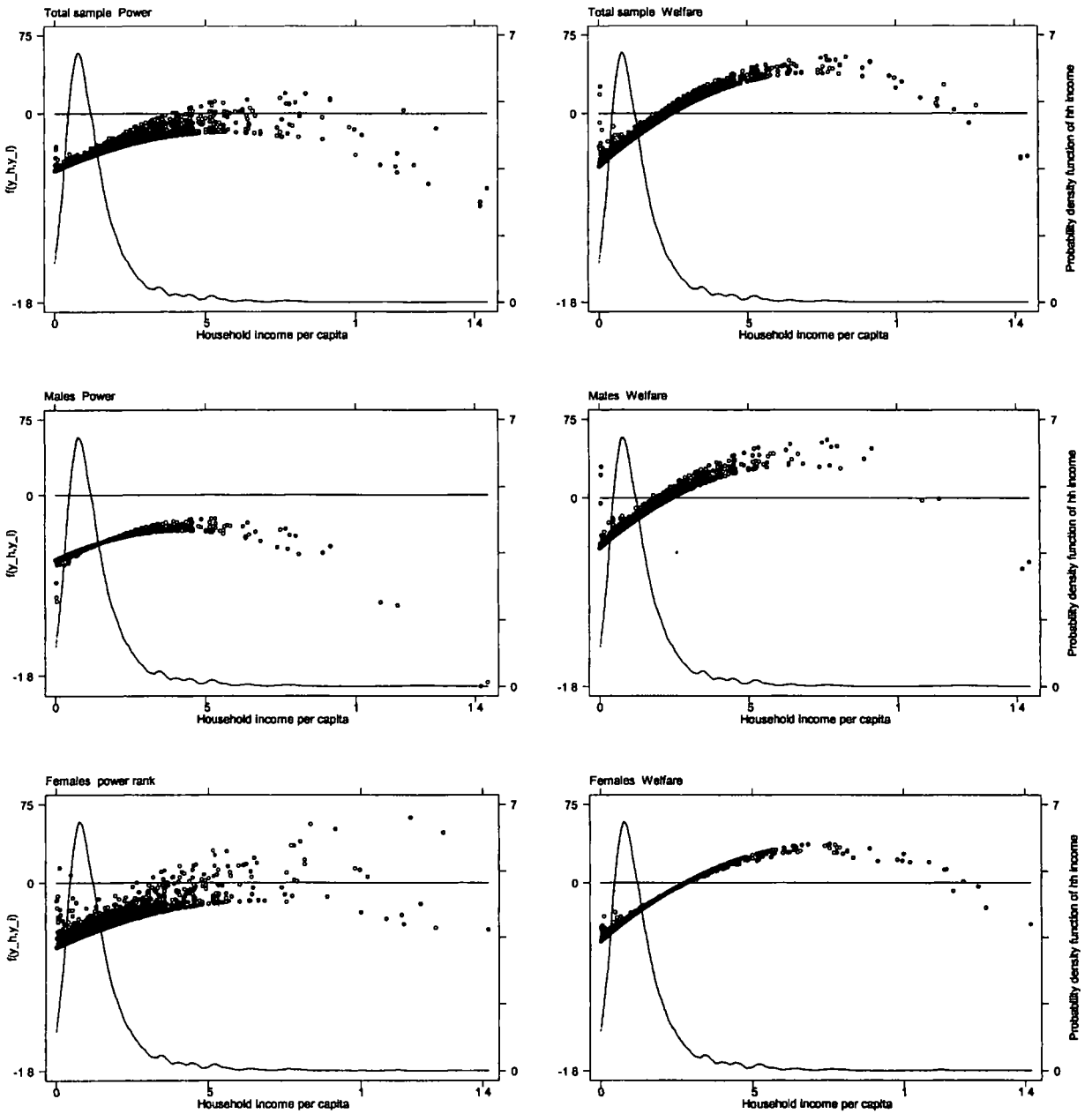


Figure 2: Power and welfare against individual income

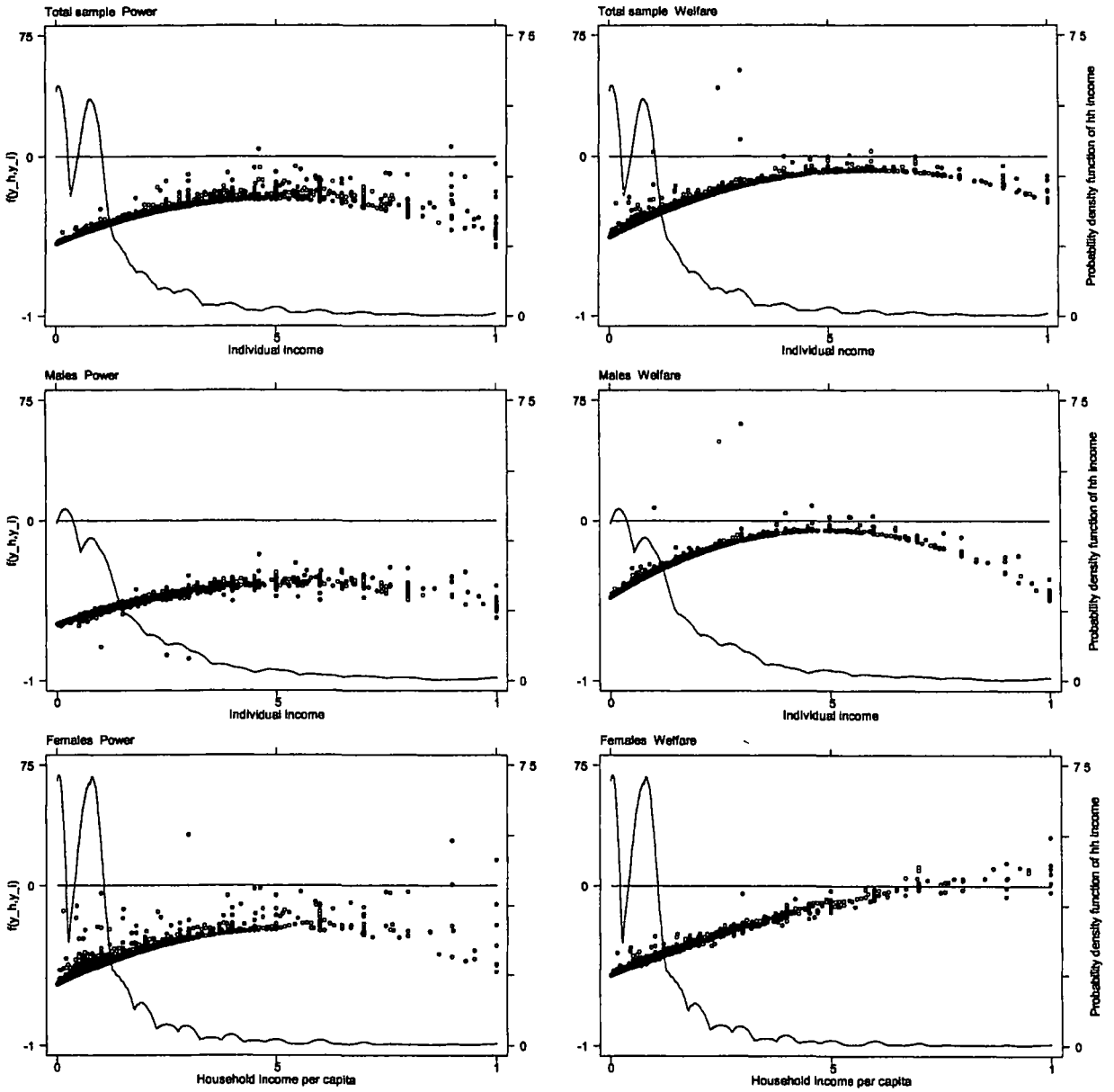
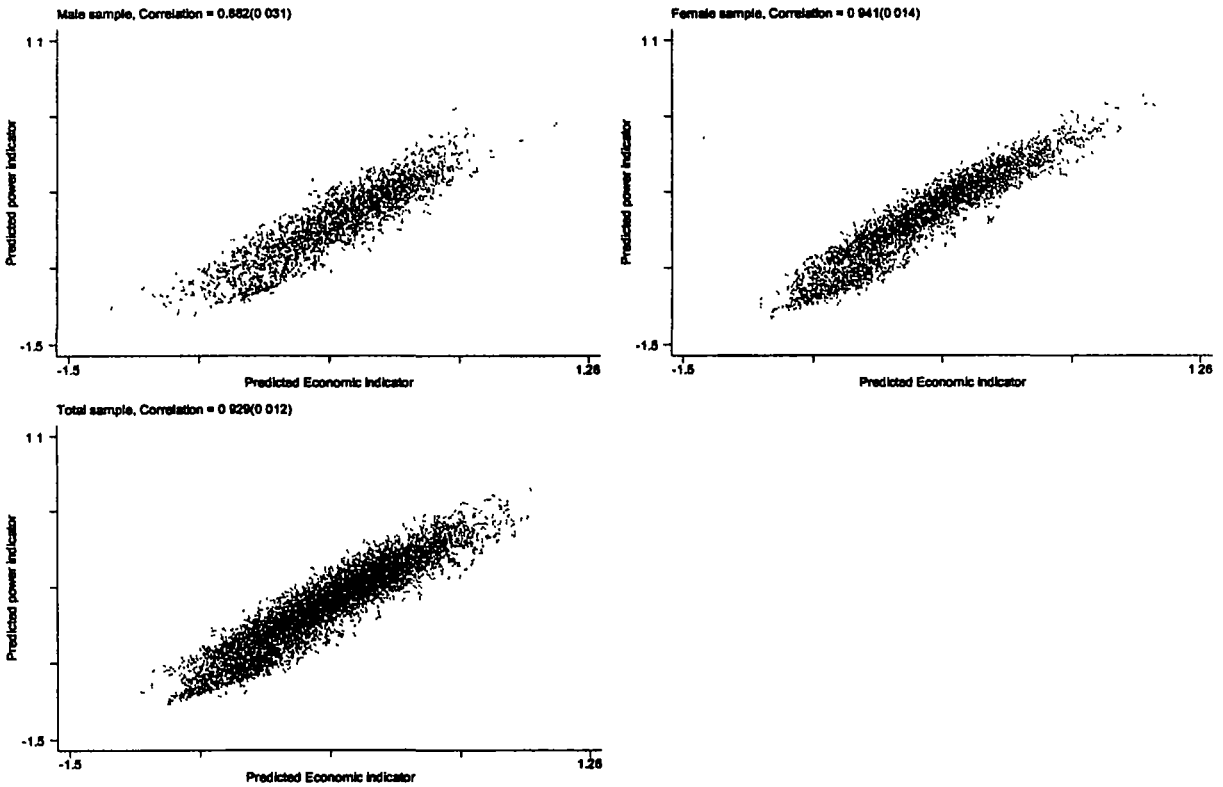


Figure 3: Predicted economic welfare vs predicted power perception



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